

# **SYSTEM & METHOD FOR PERFORMING FIELD INSPECTION**

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## **BACKGROUND OF THE INVENTION**

The present invention generally relates to a civil field inspection system and method

5 The construction inspection industry is divided into three basic parts;1) project management ,2)field workmanship and 3)laboratory testing. These areas are monitored, inspected and included in the process of verification of the contractor compliance with plans and specification.

10 Traditionally, project managers have been using spreadsheets, databases, and other software tools for years in order to track the information they need to run their jobs. Much of that information is originally accumulated in file folders and manual logs. A significantly large amount of information is created and used during a life-cycle of a construction project (i.e., from a planning stage through design and construction stages to facility management). The administration for the most part is handled through the use of spreadsheets and other  
15 limited programs. The field collection is basically performed by paper and transmitted into the administration system. This enables the project schedule, cost and quality to be managed. However it does not happen in real time.

20 Various computer systems (e.g., CAD system, analytical system, analytical system, simulation system, etc.) have been developed and introduced by construction firms. However, many of these systems are effective only within certain narrow application domains so that

transmission of information between different domains is realized by linking together the applications.

To illustrate, in order to accomplish such a construction project, each person in charge shares the project data with others, and keeps such data for his own use, and based on his allotted share of the work. However, the project activities are interrelated with each other in a complex manner so that it is very difficult for the persons in charge to have information in common with each other. Such complexity is because the project data is stored, retrieved, computed and updated as the project progresses from the viewpoint of each person in charge with respect to each particular piece of information.

Although computerized spreadsheets and databases offered significant productivity gains in modeling complex data, none was as intuitive to use as the old, but familiar paper and pencil. To use the new technology, the user had to type information into the cells of the spreadsheet. In the hand of inexperienced users, the data entry aspect was unpleasant. Further, the verification for correct data entry was time consuming. Additionally, the user had to master many complex and arbitrary operations. Furthermore, conventional computerized spreadsheets and databases still required users to manually enter the information.

## SUMMARY

A field inspection system includes a handheld computer; a camera coupled to the computer to capture an image or video; a sketch pad coupled to the handheld computer to capture a sketch; and code to annotate the image and to communicate the image to a remote computer.

Implementations of the system may include one or more of the following. The handheld computer collects work in progress data such as project and contract identification, inspector identification, item number, location, and one or more description of activities. The the handheld computer collects labor related information such as labor type, quantity and hours. The handheld computer also collects equipment information such as equipment type, quantity, hours in use and stand-by hours. The handheld computer can also collect submittal information such as weather condition, comments, and an inspector name. The handheld computer sends collected information to a server. The collected information may be sent wirelessly using a wireless handheld unit. Alternatively, a modem coupled to the handheld computer can be used to transmit the information. Also, a hot-sync cradle coupleable to the handheld computer can be used for hot-syncing the collected information for transmission to a server.

Advantages of the system may include one or more of the following. The system takes the industry to another level by making the process paperless. The field and laboratory testing is collected electronically. The inspection and testing data is transported electronically. This new technique will allow the entire process to be monitored in near real time. The project manager can basically manage the project cost, schedule and quality in near real time. The system manages the construction of multiple projects using inexpensive handheld computers communicating with a server. The handheld computer stores daily field journals such as work progress of unit bid items and contract deliverables, manpower utilization, equipment utilization, and general information including weather, temperature, remarks, and the inspector's name. The handheld computer also captures an inspection checklist and generates Punch list items, tracks Punch list items, takes facility inventory, and